

THURSDAY MARCH 11, 1875

AGRICULTURE IN VICTORIA

Department of Lands and Agriculture, Victoria. Second Annual Report of the Secretary for Agriculture. (Melbourne: Published by authority. John Ferres, Government Printer, 1874.)

THE Government of the flourishing colony of Victoria has had in active operation, for two years, a Department of Agriculture, the history, constitution, and working of which may be discussed with advantage at a time when it is proposed, in many quarters, to establish a somewhat similar department in the mother country.

The work done by the Victorian Department for 1873 is detailed in the Report sent to us by the Secretary. The origin of the Department is given in the Introduction to the First Report, which we happen to possess, and from which we learn that the Port Phillip Agricultural Society was instrumental in inducing the Legislature of the day to pass the Act, 22nd Victoria, No. 83, which established and endowed a Board of Agriculture for the colony. It would appear that the Board spent all its funds in making grants to local Agricultural Societies; and thus failed, as might have been expected, to produce results commensurate with the grant. This failure induced a number of thoughtful men to urge on the Government the propriety of establishing an independent department for promoting the agricultural interests. The executive received the matter favourably; and appointed, on the 19th of June, 1872, the Hon. J. J. Casey first Minister of Agriculture. It became necessary to appoint a permanent executive officer as head of the Department, and the course adopted for securing the services of such an officer was novel. It was called a competitive examination, but the competition was confined to an essay on the means of promoting the object. The examiners unanimously selected as the best the essay written by Mr. A. R. Wallis, who was at once appointed. Mr. Wallis holds the diploma of the Royal Agricultural College, Cirencester; and, fortunately for the colony, possesses essential qualities, such, *e.g.*, as energy, which could not be tested by the writing of an essay. The paper which secured the appointment for Mr. Wallis is published in the First Annual Report of the Department, and is the production of a thoughtful mind.

The first "Report" was made up chiefly of papers supplied by the Secretary himself. He had to discuss vine-culture, vine-disease, and other subjects which were new to him. On the whole, however, the volume was a respectable production.

In the Report for 1874 he was able to obtain papers on various agricultural subjects from the most competent men in the colony. The volume begins with the general report by the Secretary himself, which is followed by a report from the pen of the recently appointed chemist, Mr. W. E. Ivey, and a report on the state forests apparently written by the same Mr. Ivey. In addition to these reports the volume contains a great many original papers on important subjects. On the whole, the volume is creditable to the Secretary, on whom the direction of the Department devolves. He is a young man. Every-

thing was new to him in his adopted country. He had to deal with subjects which he could not by any possibility have mastered at the time he entered on his duties. Viewing his labours in the light of this fact, they give promise of a useful career. The recent scientific training which Mr. Wallis received at Cirencester must have aided him in overcoming many difficulties. He would do well to exercise great caution. We would advise him, and all those who break new ground, to avoid disquisitions or discussions on subjects with which they are not thoroughly conversant. We find an instance in the Report for 1874. In suggesting the propriety of instituting an agricultural survey of Victoria, a thing in itself most useful, the Secretary writes a rank heresy in political economy. "It seems to me," he says, "a monstrous thing that a man who, by the combined application of industry, capital, and intelligence, has converted a barren schistose hill into a well-managed and productive vineyard, should be subject to a higher assessment than the person who owns or occupies the adjacent lands of equal natural fertility, or than one who owns a vast extent of the most naturally productive lands of the colony, because such lands are devoted to none other than pastoral purposes."

In writing this passage Mr. Wallis overlooked an elementary principle of taxation, namely, that as one of the objects of taxation is to create a fund for the protection of property, men should pay this tax in proportion to their property or ability to pay. A well-managed and productive vineyard would be a source of loss to its owner if every dishonest man living in the colony of Victoria were allowed to seize the crop. It is unnecessary to waste time in elucidating so simple a matter. The wonder is, how a man of Mr. Wallis's intelligence and position could have entertained and expressed a view which is at variance alike with the elements of economic science and common sense. We fully believe the passage was written hurriedly and without thought. The subject was of the most incidental character; and there is a very general tendency to deal in an "offhand" manner with topics which arise in this way. The Secretary passes in review the leading crops and interests with which his department is concerned. We are sorry to learn that the experiments made with flax in various parts of the colony have not been satisfactory. The vine crop of 1874 was good, and it was comparatively free from disease. Fruit culture, entomology and meteorology, and a great many other subjects, are briefly noticed. The topic which appears to interest the Secretary most is agricultural education, which is treated at considerable length in a paper distinct from the Report. "It is high time," he says, "now that the Church, the Law, and the Sword have their Colleges supported by the State, that the Plough should have hers." And he urges that "it is as much a matter of national policy to teach the people how to feed men scientifically as to kill them." His paper on agricultural education is most interesting. Of his own Alma Mater, Cirencester, he speaks more reservedly than we could expect. His success, which we sincerely and ardently wish, will do more for Cirencester than mere words of praise. He describes its arrangements briefly and correctly. Of the Irish national system of agricultural education he speaks in the warmest terms. Through its

instrumentality, we are informed, the knowledge of the rotation of crops was introduced into districts where rotation cropping had been previously unknown, and where the potato and oats were the only crops formerly cultivated. Before embarking in any scheme of agricultural education, the people of Victoria would do well to study the "ups" and "downs" of this Irish system, which has been in operation for upwards of thirty years, and which, if report be true, is about being freely pruned by the Treasury. This Irish system of agricultural education is directed by a body of twenty Commissioners, of whom one is a paid administrator, nineteen being unpaid. We take it for granted that they and the Government of the day concur in the action of the Treasury. There is a widespread feeling that there are, or have been, men at the Treasury who are opposed to public grants for agricultural education, and who say there is no reason why farmers should be taught their business any more than shoemakers or carpenters.

But all that the best friends of agricultural education claim is, that the fundamental truths of agricultural science should be taught in our rural schools, and that there should be a few normal schools or colleges in which the best minds of the country could be thoroughly educated in the science of agriculture, so as to qualify them for making investigations, and for taking a leading part in agricultural progress. This is, according to our interpretation, all that the Secretary of the Agricultural Department of Victoria asks; and we trust the Government of Victoria will carry out his views. If they carefully study the several sides of the Irish system, they cannot fail to devise a system of agricultural education which would confer lasting benefits on the colony.

It has been already stated that Mr. Ivey contributes two papers, one on Chemistry and the other on the State Forests. It is not often that a man professes chemistry and forestry. Many a chemist is also a naturalist, and why should not a man study the habits of forest trees as well as those branches of knowledge included in natural history? Mr. Ivey's report on the forests is interesting, but his chemical report concerns us more. He gives us several chemical analyses of virgin soils, and endeavours to show that such analyses are of direct use to the farmer. We agree with Mr. Ivey when he says that the chemist, by discovering some compound in the soil unfavourable to crops, can afford the settler information which will save him from the loss of pitching his tent on a barren location. We must, however, assure Mr. Ivey that he pushes a little too far his argument in favour of the value of chemical analyses of soil. We have now before us a most remarkable sheet, drawn up by an advanced agriculturist, in which appear thirteen chemical analyses of soils and subsoils, and the rents of these soils, and we must say that we have never seen any return showing a great discordance between the indications of analyses and the judgment of men who know to a shade the actual value of land. If Mr. Ivey is ambitious to make his investigations in this department of chemistry of real use and benefit to the farmer, he must strike out a new line of thought. Until he does this he should, if he would retain the good opinion of men who are competent to form a correct estimate of his work, confine himself to those fields of labour in which there is

ample room for the application of the established principles of chemistry.

Mr. R. L. J. Ellery, F.R.S., Government Astronomer, contributes to the Report now under review an able and interesting report on the meteorology of Victoria. Many of the rising generation cast their thoughts on the colonies with a view to emigration; and to these Mr. Ellery's report must be instructive. In the following passage we get a general notion of the physical features of the country:—

"By an examination of a contoured plan of the colony, we find that the most prominent feature is an extensive mountain range running approximately east and west, rising somewhat abruptly about lat. $37^{\circ} 30'$, and long. $141^{\circ} 40'$, varying in altitude from 1,000 to 5,000 feet, and culminating in the N.E. in lat. $36^{\circ} 30'$, long. $148^{\circ} 20'$, at Mount Kosciusko, the highest part of Australian Alps, where it attains an altitude of over 7,000 feet. The higher parts of this range are covered with snow for several months in the year. The mountain country is for the most part densely wooded with fine timber, even to the very summits; at some of the higher elevations, however, especially in the N.E., many of the peaks are quite bare, or only partially covered with dwarfed trees or shrubs. The country north and south of this great dividing range is moderately undulating or flat, consisting often of large plains, in some parts quite destitute of trees, but closely wooded in others. Along some parts of the coast-line, however, especially in the Cape Otway, Western Port, and Wilson's Promontory districts, the land rises to considerable altitude (from 2,000 to 3,000 feet) by ranges generally well covered by timber to their summits. On the whole, the country is not well watered; the rivers are few and insignificant and are often nearly dry in summer; there are several lakes, both salt and fresh, in different parts, but not of sufficient extent to have any marked influence on the climate. The coast-line itself is for the most part flat, with a moderate elevation; although, as just stated, at some places lofty ranges abut on the sea, and the coast becomes precipitous and rugged. An extensive sea-board, open to polar winds and oceanic currents, modified, no doubt, by the presence of the island of Tasmania, an extensive and wooded mountain range running across the whole breadth of the colony, the higher portions of which are often clothed in snow, and the generally arid sub-tropical Australian interior, dominating on its northern and western boundary, must each necessarily exercise considerable influence in producing conditions of climate varying with the locality."

The notion is generally entertained in these countries that the climate of Victoria is extremely dry. Mr. Ellery shows that the rainfall attains to the average of similar latitudes in other parts of the globe. He puts the average at 25.66 inches per annum. Spontaneous evaporation is, however, very great; and a large quantity of the rainfall is also lost in consequence of the vast area of the country which has been unbroken.

The mean temperature of the year is given as follows:—

Melbourne . . .	$57^{\circ} 5'$	Bush Waste . . .	$57^{\circ} 2'$
Portland . . .	$60^{\circ} 9'$	Stawell . . .	$57^{\circ} 7'$
Cape Otway . . .	$55^{\circ} 1'$	Berwick . . .	$57^{\circ} 1'$
Port Albert . . .	$56^{\circ} 4'$	Daylesford . . .	$53^{\circ} 1'$
Saba Island . . .	$58^{\circ} 6'$	Heathcote . . .	$57^{\circ} 4'$
Ararat . . .	$58^{\circ} 0'$	Castlemain . . .	$56^{\circ} 2'$
Ballarat . . .	$53^{\circ} 6'$	Camperdown . . .	$54^{\circ} 6'$
Sandhurst . . .	$58^{\circ} 7'$		

The minimum of heat occurs in June, July, and August. The lowest known at Melbourne is 27° , or 5° below the freezing-point; at Portland, 27° ; at Sandhurst, $27^{\circ} 5'$, and at Ballarat, 22° .

The highest recorded temperature in the shade occurs at Sandhurst in January, and was 117° ; at Melbourne 111° . "There are other localities in which higher temperatures prevail in the same month, especially in the plains north of the dividing range, and along the banks of the Murray, in which the temperature has been as high as 123° to 125° for several days together. It is during the hot winds to which the climate is subject in summer that our highest temperatures occur, but they seldom last many hours, and are usually followed by a change in the direction of the wind, and by a comparatively low thermometer, when a fall of 20° to 25° often occurs in as many minutes."

We intended to make some remarks on the general advantages of a Department of Agriculture, but shall reserve them for a review of a similar volume which has come to us from the United States of America.

OUR BOOK SHELF

The Pathological Significance of Nematode Hæmatozoa.
By T. R. Lewis, M.B., Staff-Surgeon H.M.B.F., on Special Duty. (Calcutta: 1874).

THIS little work may be regarded as a companion volume to Dr. Lewis's essay "On a Hæmatozoon in Human Blood." Both are reprints from the Annual Reports of the Sanitary Commissioner with the Government of India, for the years 1871 and 1873 respectively, and as such testify to the high class of scientific labour performed by the staff officers on special duty.

The main points brought out by Dr. Lewis are such as afford proof that chyluria (or a milky-looking condition of the urine) and the elephantoid state of the tissues are associated with the presence of a microscopic nematode entozoon in the human blood. Having fairly established that conclusion, he next proceeds to show that the disorders in question are immediately "due to the mechanical interruption to the flow of the nutritive fluid in the capillaries and lymphatics." No one who takes the trouble to look into the evidence so carefully collected by the author can fail to see that he has thrown a great deal of light upon the pathology of chyluria, elephantiasis, and other more or less closely allied morbid conditions; but Dr. Lewis has done more than this, for he has extended our knowledge of the habits and genetic relations of the microscopic hæmatozoa of the dog (so long a puzzle to helminthologists), and has shown that the so-called *Filaria sanguinis hominis* are perfectly distinct from the canine *filarie*, which latter, moreover, he proves to be the progeny of the *Filaria sanguinolenta*. Further than this, the author has detected numerous specimens of an aberrant type of nematode worm in the walls of the stomach of pariah dogs. These parasites occupy small tumours, two or more being usually coiled together in the centre of each swelling. He speaks of them as *Echinorhynchi*, which, indeed, they somewhat resemble; but it is quite clear from the very admirable figures accompanying the description, that the worms are not members of the order *Acanthocephala*. They are, in fact, examples of the *Cheiracanthus robustus* hitherto found only in various species of *Felis*. The illustrations, throughout, are remarkably clear, and show the internal structure of the parasites to perfection. T. S. COBOLD

LETTERS TO THE EDITOR

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The Origin of the Jewish Week

MR. R. A. PROCTOR's paper on "Saturn and the Sabbath of the Jews," in the *Contemporary Review* of this month, reopens

one of the oldest and most interesting questions in the history of astronomy. Unfortunately, the writer is very imperfectly acquainted with the literature of his subject, and in consequence has, I think, imported not a little confusion into the discussion. That the week of seven days is directly connected with the worship of the seven planets known to the ancients, is a theory which has always had many supporters. It is at once suggested by the familiar names of the seven days, and would be absolutely proved if we could show that these names are as old as the division of the lunar month into four weeks. Again, it is also a well-known, though less wide-spread doctrine, that the Jewish Sabbath passed into Mosaism from an earlier planetary religion. Of course, if it can be shown that the Sabbath was originally sacred to Saturn, we have a strong proof of the antiquity of the names of the week-days, and a probability that these names are as old as the seven day week itself. In this way a question in the history of Semitic religions comes to have an important bearing on a question in the history of astronomy. Mr. Proctor reverses the argument. He assumes that we have the clearest possible evidence that all nations that adopted the seven-day week named the days after the planets, and did so in that peculiar order which is generally explained by assuming that a new planet presides over every successive hour of the week, and that each day takes the name of the planet of its first hour. It is then argued that Saturn, as the highest planet, was the supreme god of Assyria, and so also of the Egyptians who received their astrological lore from Chaldea. The Egyptians, we are told, certainly consecrated the seventh day of the week to Saturn, and since the Israelites left Egypt observing the Sabbath, while there is no evidence of a Sabbath in patriarchal times, "it is presumable that this day was a day of rest in Egypt." Now, whatever may be the ultimate solution of the problem of the origin and diffusion of the seven-day week, this theory rests partly on uncertain assumptions, partly on undoubted blunders. It is notorious that several Semitic nations, not to speak of the Peruvians, had a seven-day week without planetary names; so that Mr. Proctor's fundamental assumption begs the whole question. Then, again, it is the opinion of so great an authority as Lepsius that the Egyptians had no seven-day week, but divided the month into three decades. The passage of Dion Cassius from which the contrary opinion is drawn is certainly not decisive for ancient Egyptian usage, and Mr. Proctor seems to quote his author at second hand; for he asserts, in flat contradiction to Dion, that when the latter wrote, neither Greeks nor Romans used the week. For the supposition that Saturn was the supreme god of the Egyptians, not a shadow of proof is offered, while what is said of the Assyrian Saturn is directly in the teeth of the most recent researches. If Mr. Proctor had read Schrader's essay on the Babylonian origin of the week, he would have known that Adar or Saturn is quite distinct from the supreme god Asur. Thus, apart from the late and doubtful testimony of Dion, Mr. Proctor has no other evidence for his Egyptian theory of the week than that which he derives from the presumed non-existence of the Sabbath among the Hebrews before they entered Egypt. But the seven-day week appears in the narrative of the flood, which is certainly not an Egyptian legend. I say nothing of numerous minor inaccuracies in Mr. Proctor's paper, but repeat that the point on which new light requires to be thrown is whether it can be made out that the names of the seven days are as old as the week itself. This again seems to depend partly on the question whether the division of the day into twenty-four hours is older than the week, and partly on what can be determined as to early Egyptian and Chaldean subdivisions of the month. The Egyptians had a day of twenty-four hours, but had they a week? The Chaldeans may have had the week, but they seem to have divided the day (including the night) into twelve hours. Perhaps, however, it ought to be borne in mind that Dion gives another way of accounting for the names of the day, depending not on the division of the day into hours, but on the analogy of musical harmony (*ἡ ἀρμονία ἡ διὰ τεσσάρων*). The Jewish Sabbath can contribute little to the argument unless one is prepared with Lagarde to maintain that Shabbat is a name of Saturn. W. R. SMITH

Kirkes' Physiology

I HAVE observed in your issue of Jan. 28 (vol. xi. p. 248) a letter in answer to some previous remarks of mine concerning the true function of the sinuses of Valsalva. Your correspondent, Mr. Prideaux, does not, it seems, quarrel with the actual method of my reasoning, but urges that the conditions necessary for the